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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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September 14, 1989

TO: Board of Oil, Gas and Mining

THRU: Lowell P. Braxton, Associate Director, Mining *LMB*

FROM: Holland Shepherd, Reclamation Specialist/Permit Lead *HWS*

RE: Form and Amount of Surety Proposal, Cane Creek Mine, Moab Salt, Incorporated, M/019/005, Grand County, Utah

Tentative approval of Moab Salt, Incorporated's Mining and Reclamation Plan was made on July 11, 1989. The operator has submitted a commendable Mining and Reclamation Plan. The review of this plan, because of its complexity, spans several generations of DOGM employees and at least one generation of the operator's staff. Final approval now rests with the Board's acceptance of the operator's proposed form and amount of reclamation surety.

The operator is proposing a self bond for \$9,700,000. The Division does not support acceptance of this form of surety. The amount of reclamation surety, however, has been developed, and agreed upon, through negotiations between the operator and this Division.

Please find attached the following background information:

1. Executive Summary
2. Location Map
3. Reclamation Surety Estimate
4. Summary Checklist

Copies of the Reclamation Contract, Self Bonding Agreement and Self Bonding Qualification Statement will be provided to the Board as soon as the operator makes them available.

jb
Attachments
MN4/185

DOGM MINERALS PROGRAM

CHECK LIST FOR BOARD APPROVAL
OF
FORM AND AMOUNT OF SURETY

Mine Name Cane Creek-Moab Salt Inc.

File No. M/019/005

Item	Provided		Remarks
	Yes	No	
Executive Summary	X		
Location Map	X		
Reclamation Bond Estimate	X		
Signed Reclamation Contract		X	To be provided
Signed Power of Attorney/ Affidavit of Qualification		X	
Bond/Reclamation Surety		X	Self bonding form to be provided.
Surety Signoff (Other State/Federal Agencies)		X	Federal agency to complete review by September 28, 1989.

EXECUTIVE SUMMARY

Mine Name:	<u>Cane Creek Mine</u>	I.D. No.:	<u>M/019/005</u>
Operator:	<u>Moab Salt Incorporated</u>	County:	<u>Grand</u>
	<u>P. O. Box 1208</u>	New/Existing:	<u>Existing</u>
	<u>Moab, Utah 84532</u>	Mineral Ownership:	<u>Federal & State</u>
		Surface Ownership:	<u>80% Fee, 15% State,</u>
			<u>2% BLM</u>
Telephone:	<u>801-259-7171</u>	Lease No.(s):	<u>See Attached</u>
Contact Person:	<u>Eric K. York</u>	Permit Term:	<u>Life of Mine</u>
Life of Mine:	<u>100 years</u>		

Legal Description: T26S, R20E, Secs. 22-36; T27S, R20E, Secs. 1, 2, 11, 12

Mineral(s) to be Mined: Potash and Salt (Sodium Chloride)

Mining Methods: Solution Mining

Acres to be Disturbed: 1,002.1

Present Land Use: All Mining

Postmining Land Use: Rangeland, wildlife, recreational, oil & gas exploration

Variances from Reclamation Standards (Rule M-10) Granted: (8) Drainages

SOILS and GEOLOGY:

Soil Description: Desert sandy looms, undeveloped lacking in organic and nutrient content.

pH: 8.4

Special Handling Problems: Extensive leaching at final reclamation to remove salts.

Geology Description: The operation lies within the 15,000 square mile Paradox Geologic Basin. The basin is underlain by the Pennsylvanian Paradox evaporites which consist mostly of sodium chloride and subsidiary beds of potassium chloride, gypsum, limestones, shales and clastics. The mine is located in rugged terrain, bisected by steep canyons at the floor of a 2,000 foot deep amphitheater adjacent to the Colorado River, directly under Dead Horse Point State Park. The surface portions of the mine lie within the Cutler and Upper Elephant Canyon Formations.

HYDROLOGY:

Groundwater Description: The amphitheater containing the Moab Salt brine exhibits very little discharge of natural ground water. The amphitheater has eroded northwest along the crest of the Cane Creek anticline, exposing the rocks comprising its walls at their highest topographic position in the area. The presence of the amphitheater and numerous nearby deep canyons has imposed an unsaturated environment on the exposed rocks by keeping the rocks well drained. All of the Permian and non-salt Pennsylvanian rocks laying below the level of the Colorado River, in the vicinity of the mine, are saturated. The solution mine lies in the unsaturated Paradox formation some 1500 to 3500 feet below the Colorado River.

Surface Water Description: No perennial water ways are found on the minesite. However, the surface disturbance does lie directly adjacent to the Colorado River. The site is bisected by several ephemeral streams which feed into deep canyons. Some of these streams have become artificially perennial as a result of brine leakage from the operation's evaporation ponds. The site, for the most part, is dry, other than the man made effluents and a few natural seeps found in the area.

Water Monitoring Plan: None

ECOLOGY:

Vegetation Type(s); Dominant Species: Rabbitbrush, Mormon Tea, Sagebrush, Snakeweed, Horsebrush, Sand dropseed, Cheatgrass, Saltgrass, Galleta grass, Globemallow, Prickly Pear

Percent Surrounding Vegetative Cover: 20%

Wildlife Concerns: No major impacts

Surface Facilities: Extensive warehouse and processing facilities, concrete, headframe, numerous service buildings, office complex, rail facilities, all found within the 100 acre plant site area.

Mining and Reclamation Plan Summary: The operator intends to reclaim this area to as near original condition as possible. The mines surface facilities will be removed and disturbed areas regraded. All salt contaminated areas will be cleaned up and revegetated.

SURETY:

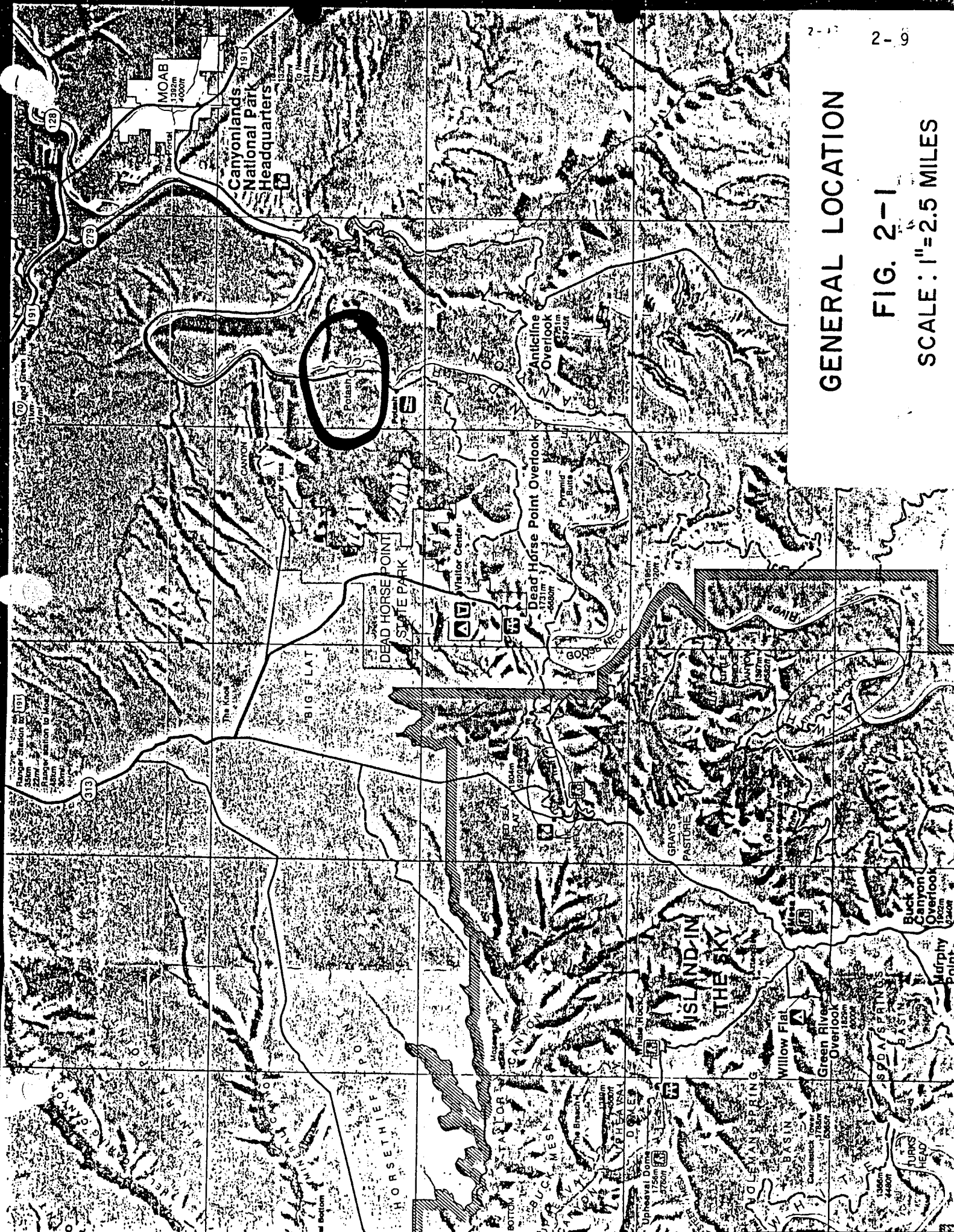
Amount: \$9,700,000
Form: Self Bond
Renewable Term: No term negotiated

TABLE 1-3

CANE CREEK AREA
MOAB SALT, INC.'S POTASH HOLDINGS

	<u>Texasgulf File No.</u>	<u>Federal Serial No.</u>	<u>State Lease No.</u>	<u>Acres</u>
1	4537		U-013223-State	2,439.04
2	4538		U-010797-State	2,040.00
3	4538-2c	U-0143659		200.00
4	4539		U-013167-State	1,800.00
5	4540		U-0486-State	2,219.70
6	4542		U-016133-State	2,401.16
7	4543		U-018249-State	186.86
8	4554		ML-9638	440.00
9	4557		ML-10628	640.00
10	4558		ML-11800	698.64
11	4559		ML-15092	1,516.00
12	4560		ML-17248	640.00
13	4629	U-059944		600.00
14	5117	U-0141157		<u>1,040.00</u>
		Total Acres		16,861.49

Revised 5/15/89



2-17

2-9

GENERAL LOCATION

FIG. 2-1

SCALE: 1"=2.5 MILES

TABLE 14.4 - CONCEPTUAL RECLAMATION PLAN TOTAL COST ESTIMATES

14-17

RECLAMATION COST SUBTOTAL - TABLE 14-3	\$4,490,000
EQUIPMENT REMOVAL SUBTOTAL - TABLE 14-1	\$171,000
STRUCTURE DEMOLITION SUBTOTAL - TABLE 14-1	\$433,000
EARTH MOVING SUBTOTAL - TABLE 14-2	\$2,915,000
1989 Dollars	
TOTAL COST	\$8,009,000

10% CONTINGENCY	\$801,000
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	\$8,810,000

1994 DOLLARS (1.93% INFLATION)	\$9,700,000
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REVISED 6/30/89